SECTION 1 – IDENTIFICATION

Product Identifier: 10X Tris-Borate-EDTA (TBE) Buffer, pH 8.3
Ultra Pure Grade

Catalogue Number: 3010

Other means of identification: Not available

Recommended use of the chemical and restrictions on use:
Suitable for electrophoresis of nucleic acids in agarose and polyacrylamide gels. Used both as a running buffer and as a gel preparation buffer.
For R&D use only. Not for pharmaceutical, household or other uses.

Supplier Information:

Axil Scientific Pte Ltd
41 Science Park Road
#04-08 The Gemini
Singapore Science Park II
Singapore 117610
Tel: +65 6775 7318
Fax: +65 6775 7211
Email: info@axilscientific.com

Apical Scientific Sdn Bhd
No 7-1 to 7-4 Jalan SP 2/7
Taman Serdang Perdana, Seksyen 2
Seri Kembangan 43300
Tel: +603 8943 3252
Fax: +603 8943 3243
Email: custcare@apicalscientific.com

Emergency phone number:

Monday – Friday, 8:00 a.m. to 6:00 p.m.
+65 6775 7318 (Singapore)
+603 8943 3252 (Malaysia)

SECTION 2 – HAZARDS IDENTIFICATION

GHS Classification:
Reproductive toxicity: Category 1B

GHS Hazard Pictogram(s):

Signal Word: Danger

H360: May damage fertility or the unborn child.
Precautionary statements:

**Prevention**
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.

**Response**
P308+P313: If exposed or concerned: Get medical advice/attention.

**Storage**
P405: Store locked up.

**Disposal**
P501: Dispose of contents/container in accordance with federal, state and local environmental regulations.

### SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical characterization</th>
<th>Tris Base</th>
<th>THAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemical Identity</strong></td>
<td>Tris Base</td>
<td>THAM</td>
</tr>
<tr>
<td><strong>Synonyms</strong></td>
<td>Tris(hydroxymethyl)aminomethane</td>
<td>Trisamine</td>
</tr>
<tr>
<td></td>
<td>Trimethylol aminomethane</td>
<td>Trisaminol</td>
</tr>
<tr>
<td></td>
<td>TRIS</td>
<td>2-Amino-2-(hydroxymethyl)-1,3-propanediol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,1,1-Tris(hydroxy methyl) Methylamine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tromethamol</td>
</tr>
<tr>
<td><strong>Molecular Formula</strong></td>
<td>(HOCH₂)₃CNH₂</td>
<td></td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>121.14 g/mol</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Boric Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Synonyms</strong></td>
<td>Boracic Acid</td>
</tr>
<tr>
<td></td>
<td>Hydrogen Borate</td>
</tr>
<tr>
<td></td>
<td>Orthoboric Acid</td>
</tr>
<tr>
<td></td>
<td>Boracic acid</td>
</tr>
<tr>
<td></td>
<td>Hydrogen orthoborate</td>
</tr>
<tr>
<td></td>
<td>Trihydroxyborane</td>
</tr>
<tr>
<td><strong>Molecular Formula</strong></td>
<td>H₃BO₃</td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>61.83</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>EDTA Disodium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Synonyms</strong></td>
<td>EDTA, Disodium Salt Dihydrate</td>
</tr>
<tr>
<td></td>
<td>Ethylenediaminetetraacetic acid disodium salt dihydrate</td>
</tr>
<tr>
<td></td>
<td>Ethanediylibis(N-(carboxymethyl)glycine) disodium salt</td>
</tr>
<tr>
<td></td>
<td>Disodium dihydrogen ethylenediaminetetraacetate</td>
</tr>
<tr>
<td></td>
<td>Versene disodium salt</td>
</tr>
<tr>
<td><strong>Molecular Formula</strong></td>
<td>C₁₀H₁₄N₄O₆Na₂O₂H₂O</td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>372.25 g/mol</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tris Base</td>
<td></td>
<td>&lt; 11 %</td>
</tr>
<tr>
<td>CAS-No: 77-86-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No: 201-064-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boric Acid</td>
<td></td>
<td>&lt; 5.5 %</td>
</tr>
<tr>
<td>CAS-No: 10043-35-3</td>
<td>Repr. 1B; H360</td>
<td></td>
</tr>
<tr>
<td>EC-No: 233-139-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTA Disodium</td>
<td></td>
<td>&lt; 1 %</td>
</tr>
<tr>
<td>CAS-No: 6381-92-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No: 205-358-3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4 – FIRST-AID MEASURES

General Advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

Eye Contact
Flush eyes with water as a precaution.

Skin Contact
Immediately wash skin thoroughly with soap and copious amounts of water. Consult a physician.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration or if breathing is difficult, give oxygen. Consult a physician.

Ingestion
Never give anything by mouth to an unconscious person. Rinse mouth with water.

Most important symptoms and effects, both acute and delayed
Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, erythematous lesions on the skin and mucous membranes. Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions, and coma. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Indication of immediate medical attention and special treatment needed
Data not available.

SECTION 5 – FIRE-FIGHTING MEASURES

Extinguishing Media
Use water spray, dry chemical powder, carbon dioxide or alcohol-resistant foam.

Special Exposure Hazards
Carbon oxides, nitrogen oxides (NOx), Borane/boron oxides
Special Fire-fighting Procedures
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental Precautions
Do not allow material into sewers and drainage systems.

Methods for Cleaning Up
Clean up spills immediately, observing precautions in the safety data sheet and label. Dispose into a chemical waste container.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling
Use with adequate ventilation as necessary or desired. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Follow all SDS/label precautions. Avoid contact with skin and eyes. Avoid raising dust.

Conditions for safe storage, including any incompatibilities
Store in tightly closed container in a cool, dry and well-ventilated area.

SECTION 8 – EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Limits
We are not aware of any national exposure limit.

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice.

Eye/ Face Protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin/ Hand Protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body protection**
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Do not let product enter drains.

### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Clear solution</td>
</tr>
<tr>
<td>b) Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>c) Odour Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>d) pH</td>
<td>8.1 – 8.5 (Neat, 25 °C)</td>
</tr>
<tr>
<td>e) Melting/freezing point</td>
<td>Not available</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>Not available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>Not available</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>Not available</td>
</tr>
<tr>
<td>k) Vapour pressure (mm Hg)</td>
<td>Not available</td>
</tr>
<tr>
<td>l) Vapour density</td>
<td>Not available</td>
</tr>
<tr>
<td>m) Relative density</td>
<td>Not available</td>
</tr>
</tbody>
</table>
n) Water solubility  Not available  
o) Partition coefficient: n-octanol/water  Not available  
p) Autoignition temperature  Not available  
q) Decomposition temperature  Not available  
r) Viscosity  Not available  

SECTION 10 – STABILITY AND REACTIVITY

Reactivity  
Data not available.

Chemical stability  
Data not available.

Possibility of hazardous reactions  
Data not available.

Conditions to avoid  
Data not available.

Incompatible material  
Strong oxidizing agents, Potassium, Acid anhydrides.

Hazardous decomposition products  
Data not available.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute toxicity  
Data not available.

Skin corrosion/irritation  
Data not available.

Serious eye damage/eye irritation  
Data not available.

Respiratory or skin sensitization  
Data not available.

Germ cell mutagenicity  
Data not available.

Carcinogenicity  
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity
Fetotoxicity. Presumed human reproductive toxicant.

Specific target organ toxicity – single exposure
Data not available.

Specific target organ toxicity – repeated exposure
Data not available.

Aspiration hazard
Data not available.

Other information
RTECS: Data not available

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity
Data not available.

Persistence and degradability
Data not available.

Bioaccumulative potential
Data not available.

Mobility in soil
Data not available.

Other adverse effect
Data not available.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose off as unused product.

SECTION 14 – TRANSPORT INFORMATION

UN Number
ADR/RID: -  IMGD: -  IATA-DGR: -

UN Proper Shipping Name:
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA-DGR: Not dangerous goods
Transport Hazard Class(es)
ADR/RID: -  
IMDG: -  
IATA-DGR: -

Packing Group
ADR/RID: -  
IMDG: -  
IATA-DGR: -

Environmental Hazards
ADR/RID: no  
IMDG: marine pollutant: no  
IATA-DGR: no

Special Precaution for Users
Data not available

SECTION 15 – REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Data not available

SECTION 16 – OTHER INFORMATION

Date of Issue: JULY 11, 2008  
Date of Revision: MAY 07, 2017

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. Axil Scientific Pte Ltd shall not be held liable for any damage resulting from handling or from contact with the above product.